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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/317,536	05/24/1999	BIN ZHAO	97RSS256-DIV	9245

25700 7590 05/23/2003

FARJAMI & FARJAMI LLP  
16148 SAND CANYON  
IRVINE, CA 92618

EXAMINER
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OWENS, DOUGLAS W

ART UNIT	PAPER NUMBER
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2811

DATE MAILED: 05/23/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

**Advisory Action**

Application No.

09/317,536

Applicant(s)

ZHAO ET AL.

Examiner

Douglas W Owens

Art Unit

2811

--The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

THE REPLY FILED 30 April 2003 FAILS TO PLACE THIS APPLICATION IN CONDITION FOR ALLOWANCE. Therefore, further action by the applicant is required to avoid abandonment of this application. A proper reply to a final rejection under 37 CFR 1.113 may only be either: (1) a timely filed amendment which places the application in condition for allowance; (2) a timely filed Notice of Appeal (with appeal fee); or (3) a timely filed Request for Continued Examination (RCE) in compliance with 37 CFR 1.114.

**PERIOD FOR REPLY** [check either a) or b)]

- a) ☒ The period for reply expires 4 months from the mailing date of the final rejection.
- b) ☐ The period for reply expires on: (1) the mailing date of this Advisory Action, or (2) the date set forth in the final rejection, whichever is later. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of the final rejection. ONLY CHECK THIS BOX WHEN THE FIRST REPLY WAS FILED WITHIN TWO MONTHS OF THE FINAL REJECTION. See MPEP 706.07(f).

Extensions of time may be obtained under 37 CFR 1.136(a). The date on which the petition under 37 CFR 1.136(a) and the appropriate extension fee have been filed is the date for purposes of determining the period of extension and the corresponding amount of the fee. The appropriate extension fee under 37 CFR 1.17(a) is calculated from: (1) the expiration date of the shortened statutory period for reply originally set in the final Office action; or (2) as set forth in (b) above, if checked. Any reply received by the Office later than three months after the mailing date of the final rejection, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

1. ☐ A Notice of Appeal was filed on \_\_\_\_\_. Appellant's Brief must be filed within the period set forth in 37 CFR 1.192(a), or any extension thereof (37 CFR 1.191(d)), to avoid dismissal of the appeal.
2. ☒ The proposed amendment(s) will not be entered because:
- (a) ☐ they raise new issues that would require further consideration and/or search (see NOTE below);
- (b) ☐ they raise the issue of new matter (see Note below);
- (c) ☒ they are not deemed to place the application in better form for appeal by materially reducing or simplifying the issues for appeal; and/or
- (d) ☒ they present additional claims without canceling a corresponding number of finally rejected claims.

NOTE: See Continuation Sheet.

3. ☐ Applicant's reply has overcome the following rejection(s): \_\_\_\_\_.
4. ☒ Newly proposed or amended claim(s) 35 and 36 would be allowable if submitted in a separate, timely filed amendment canceling the non-allowable claim(s).
5. ☐ The a) ☐ affidavit, b) ☐ exhibit, or c) ☐ request for reconsideration has been considered but does NOT place the application in condition for allowance because: \_\_\_\_\_.
6. ☐ The affidavit or exhibit will NOT be considered because it is not directed SOLELY to issues which were newly raised by the Examiner in the final rejection.
7. ☒ For purposes of Appeal, the proposed amendment(s) a) ☒ will not be entered or b) ☐ will be entered and an explanation of how the new or amended claims would be rejected is provided below or appended.

The status of the claim(s) is (or will be) as follows:

Claim(s) allowed: 28-33.

Claim(s) objected to: 17 and 18.

Claim(s) rejected: 16, 19-27 and 34.

Claim(s) withdrawn from consideration: \_\_\_\_\_.

8. ☐ The proposed drawing correction filed on \_\_\_\_\_ is a) ☐ approved or b) ☐ disapproved by the Examiner.
9. ☐ Note the attached Information Disclosure Statement(s) (PTO-1449) Paper No(s). \_\_\_\_\_.
10. ☐ Other: \_\_\_\_\_

Steven Lohs  
Primary Examiner

*Steven Lohs*

Continuation of 2. NOTE: Applicant's arguments filed April 30, 2003 have been fully considered but they are not persuasive.

The Applicant argues that the term "the gaps" requires a low-k material be formed between all of the gaps. The claim language only requires that the one or more metal lines have gaps between them. This feature is shown in figure 1. The claim further requires that a low-k material fills the gaps between the metal lines. There are three metal lines shown in figure 1, and two gaps between them. All of the gaps shown have a low-k material filler. Furthermore, there is nothing in the claims that requires "all" gaps have a low-k dielectric material filling them. The broad claim language, only requires that gaps exist between the metal lines and a low-k material fills those gaps.

Usami meets those limitations.

The Applicant further argues that Usami teaches an interlayer insulator (4) in a widely spaced region and therefore does not teach a low-k material filling the gaps between metal lines. There is nothing in the claims to preclude additional gaps having different dielectric materials therebetween.

The Applicant argues that Usami does not teach a protective layer formed directly over the metal lines and the low-k material, asserting that the language, "directly over" requires that the protective layer be in direct contact with the low-k material and metal lines. The Applicant asserts, citing Webster's New World Dictionary, that the term "directly" modifies "over" to require that there is nothing or no one between. The term "directly" is also defined to mean "In a direct line or way; straight" (See Webster's II New Riverside University Dictionary). It can be seen in figure 1 of Usami that the protective layer is formed in a direct line with the underlying low-k material and metal lines. There is nothing in the claims to necessarily require that the protective layer be in direct contact with the low-k material and metal lines.